



# **Product Development in Cloud**

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NXP Semiconductors  
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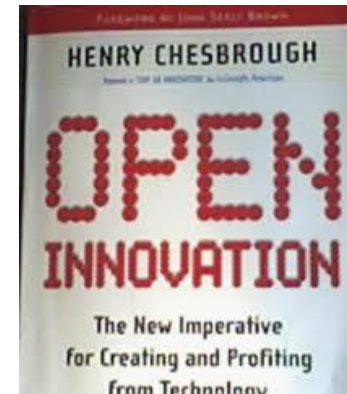
# Introduction

***Über den Wolken***, muss die Freiheit wohl grenzenloss sein  
“Lied von Reinhard Mey, 1974”



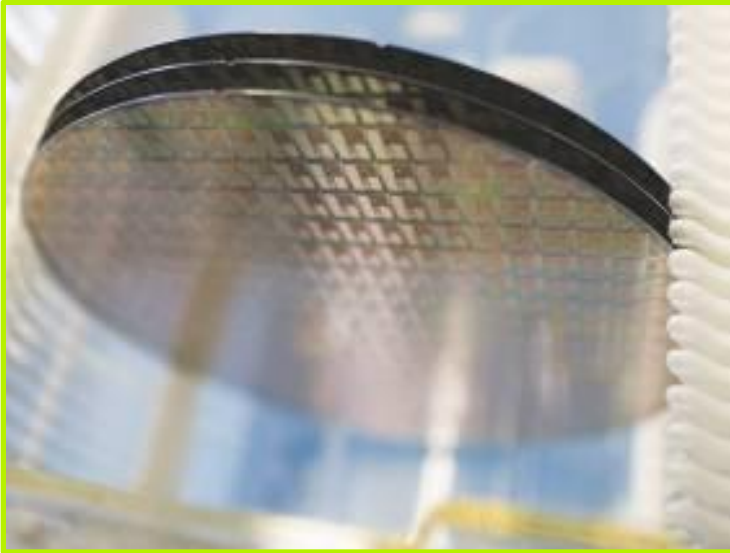
**In de Cloud:** “Cloud” staat sterk in de belangstelling

**"We should not secure or control ourselves out of business"**  
“Henk’s mail-signature, 2003”



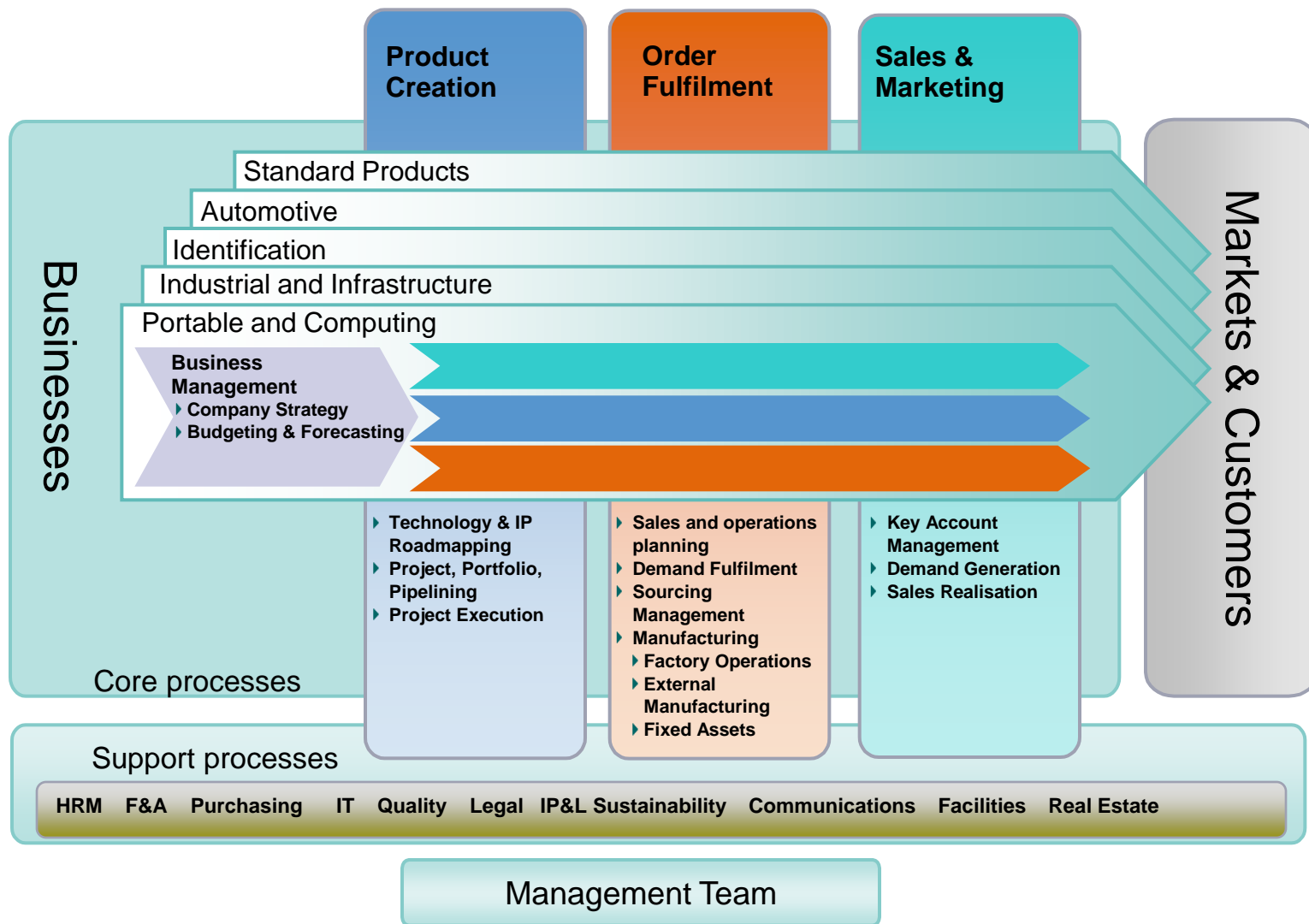
# NXP Semiconductors

NXP Semiconductors N.V. (NASDAQ: NXPI) provides High Performance Mixed Signal and Standard Product solutions that leverage its leading RF, Analog, Power Management, Interface, Security and Digital Processing expertise.



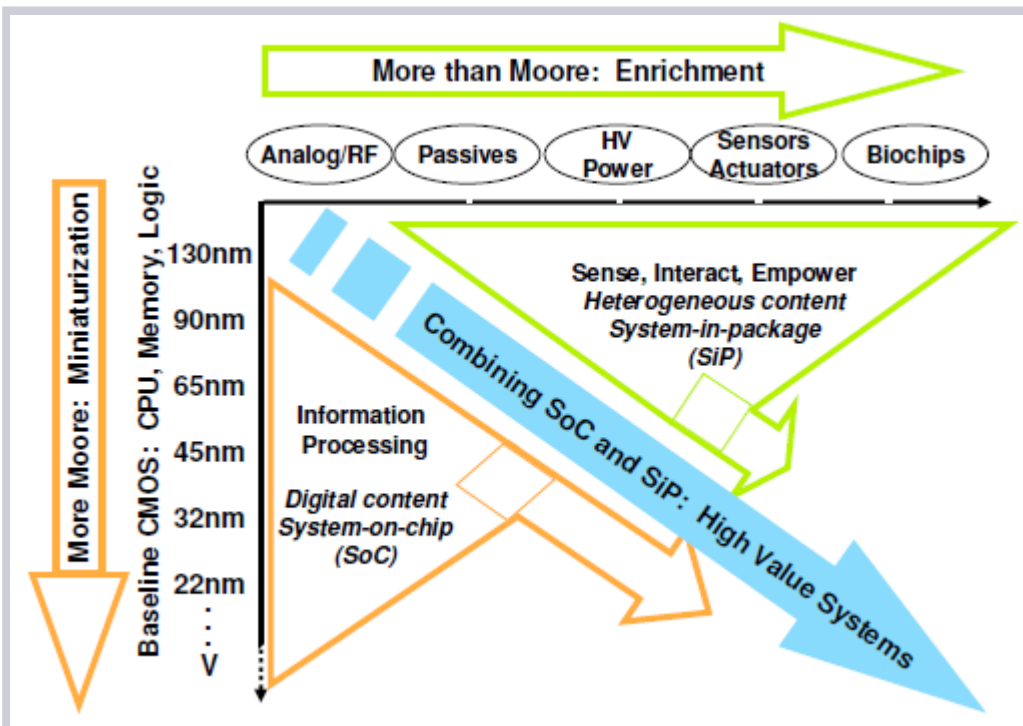
These innovations are used in a wide range of automotive, identification, wireless infrastructure, lighting, industrial, mobile, consumer and computing applications.

A global semiconductor company with operations in more than 25 countries, NXP posted revenue of \$4.2 billion in 2011. Additional information can be found by visiting [www.nxp.com](http://www.nxp.com)



# Characteristics IC Design

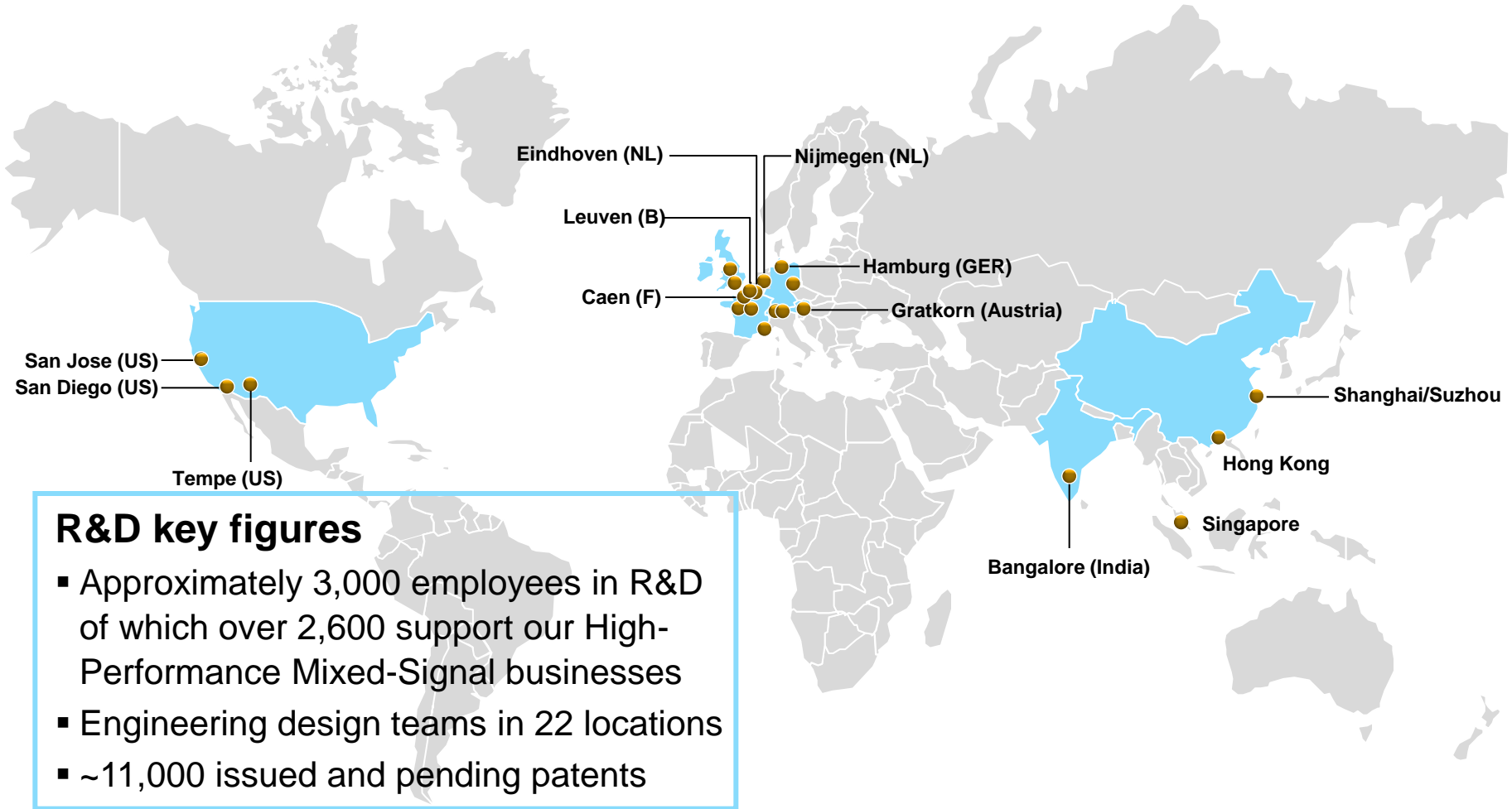
From living faster to living better



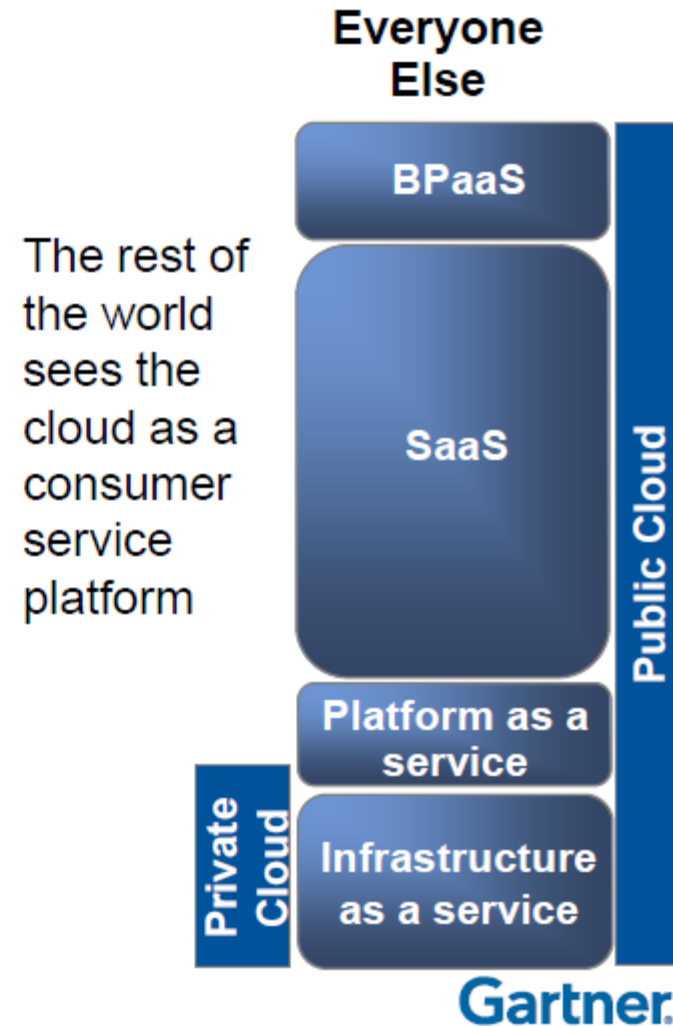
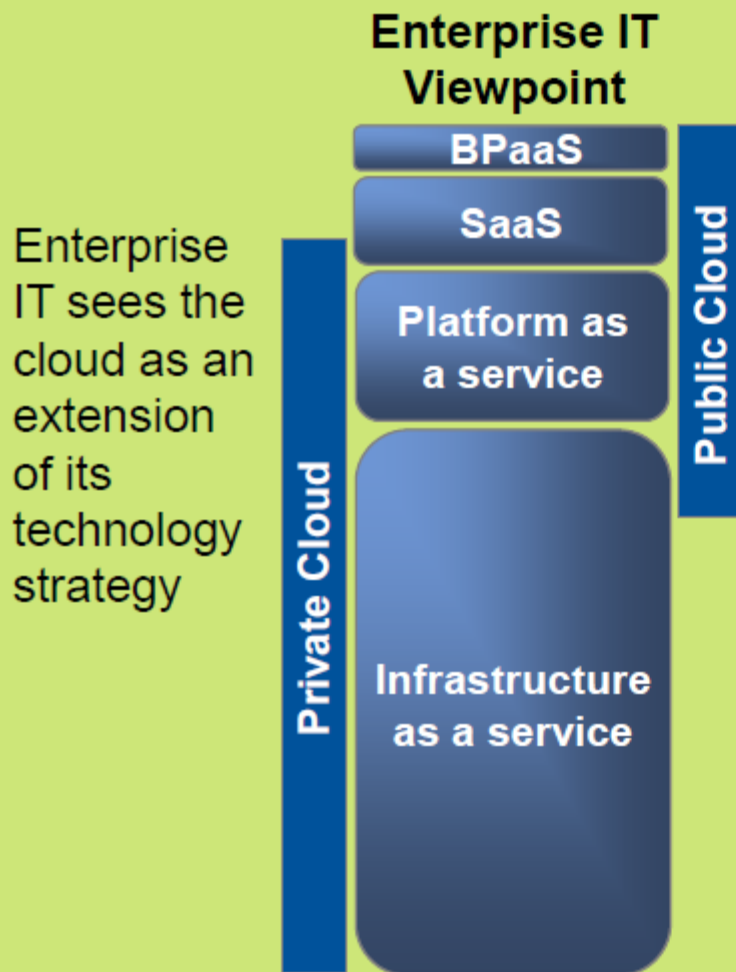
- ▶ Multi discipline and multi-site projects
- ▶ > 2000 servers
- ▶ > 2 PB data
- ▶ > 1000 applications
- ▶ Huge dynamics in project-teams & infrastructure

# Strong innovation track record dating 50+ years

*Focused investment of over \$550 million per year in R&D*

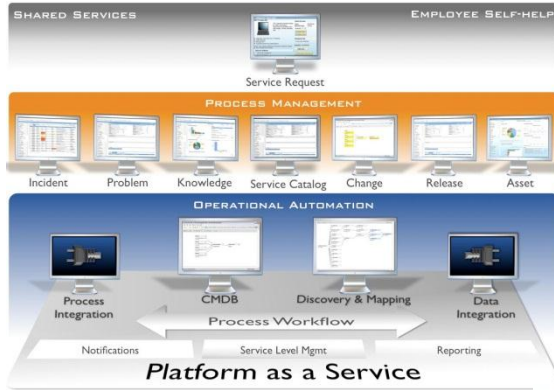


# Different Viewpoints: Different Perspectives



# Cloud computing and SAAS

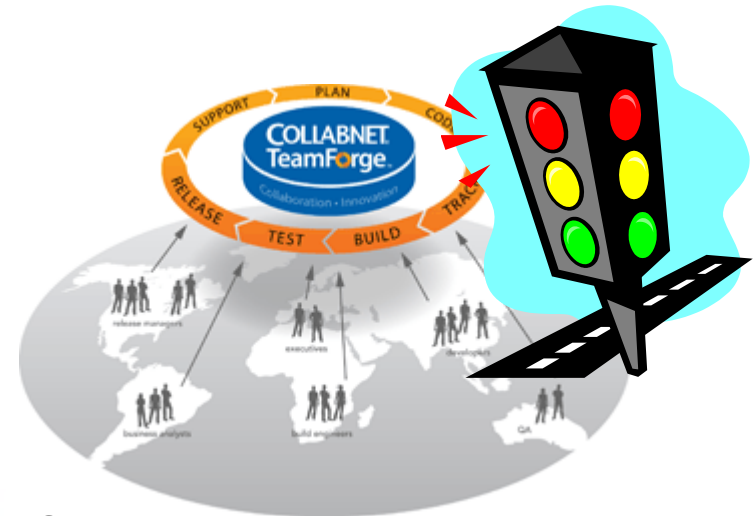
## Changing context



**ServiceNow.com**  
IT Service Desk Tool

**Peopleclick**  
**Authoria**

**People Performance Management**



**SW configuration Management**



Microsoft  
**BPOS**

Office 365

**Common Collaboration Platform**



**CRM Solution**

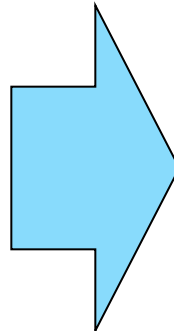


# R&D (IT) challenges

## R&D drivers for IT

- Designers productivity
- Growing diversity in Design projects
- Increasing complexity of designs in combination with shorter lead-times
- Diversity and increasing complexity of EDA tooling
- HW/SW co-design
- Growth in Design Data in all dimensions
- Collaboration with Customers & Suppliers
- Lowering Costs

**Note:** Roadmaps and project descriptions for 2013 are available



## R&D IT approach

### • Designer Productivity

*Dedicated design-project support by CAD-teams (e.g. competence teams)*

*Throughput time reduction of EDA applications (simulations, verifications)*

*offloading simulation/verification jobs to Public Cloud (Cloud bursting)*

*Supporting Agile product development*

### • Lean R&D IT organization

*Complexity reduction and continuous improvement of the EDA application portfolio in close cooperation with Central R&D*

*Move of operational support to APAC*

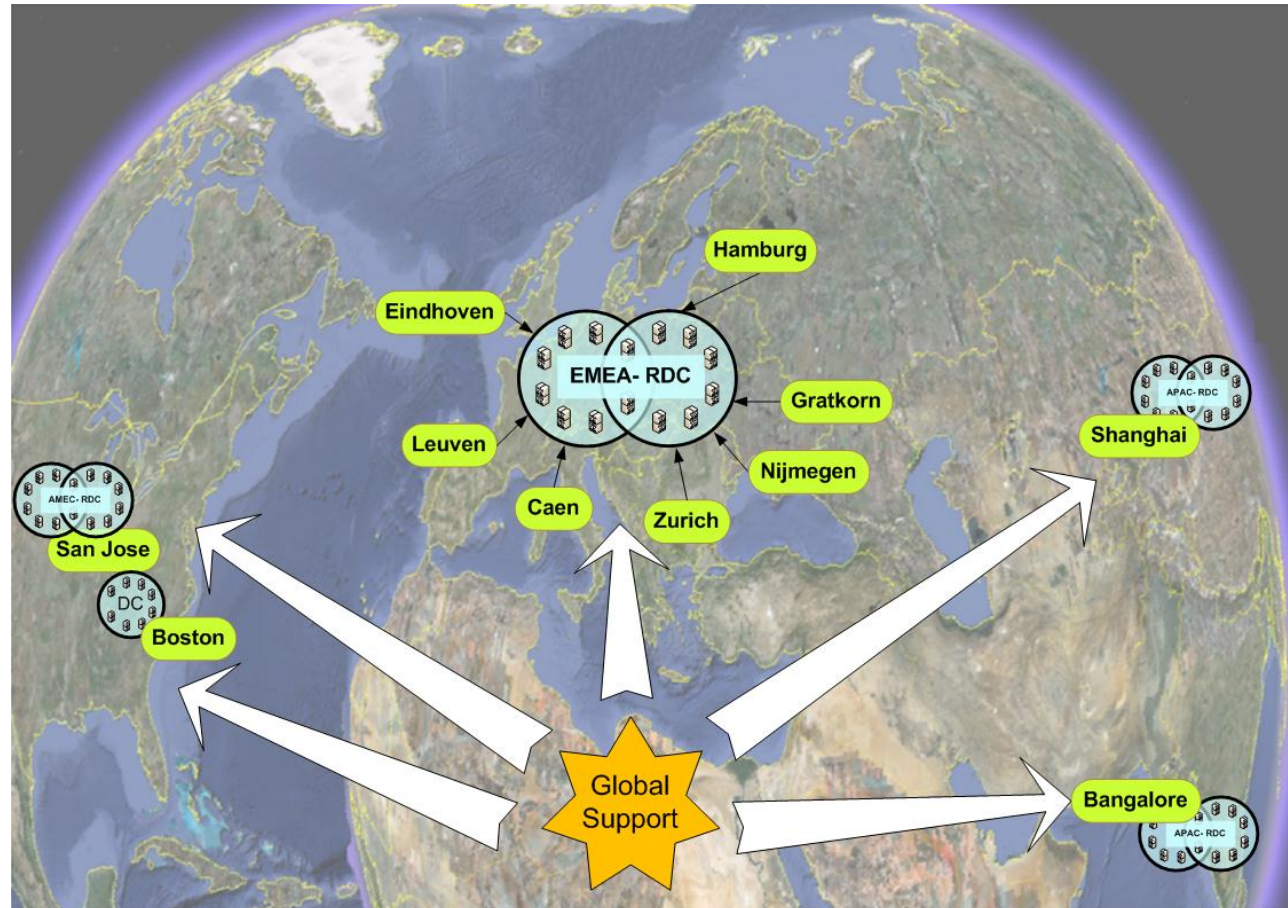
*Storage cost-avoidance/reduction*

### • Business enablers

*BU-ID Secure Document Store,*

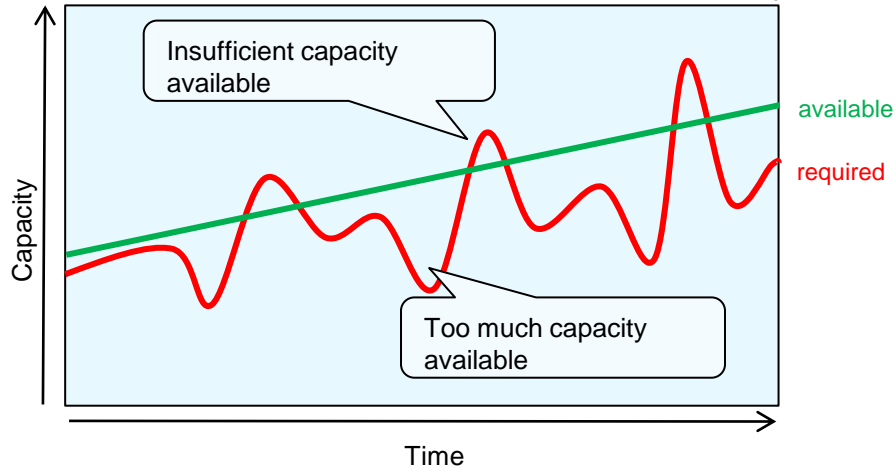
# NxDI – High Level Architecture

- ▶ NxDI = NXP private cloud for IC design
- ▶ Design engineers connect remotely from R&D centers
- ▶ NxDI has a globally standardized setup
- ▶ NxDI is globally managed from one location.

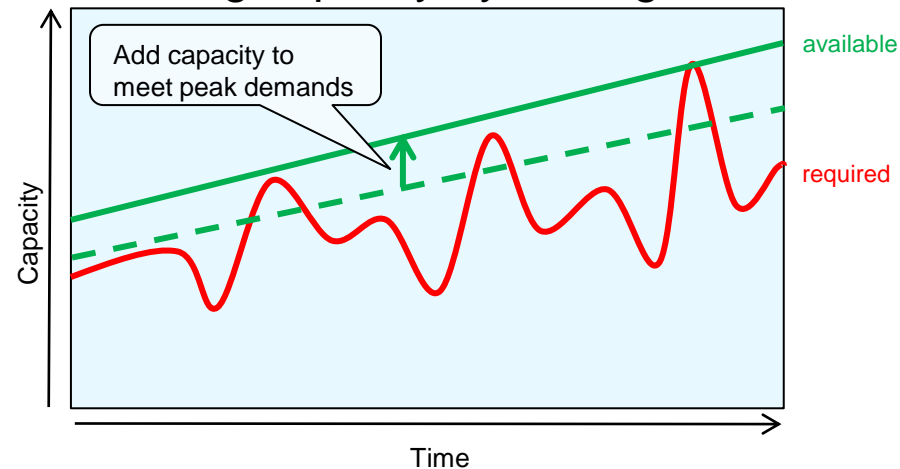


# Balancing Costs; Dealing with variable capacity needs

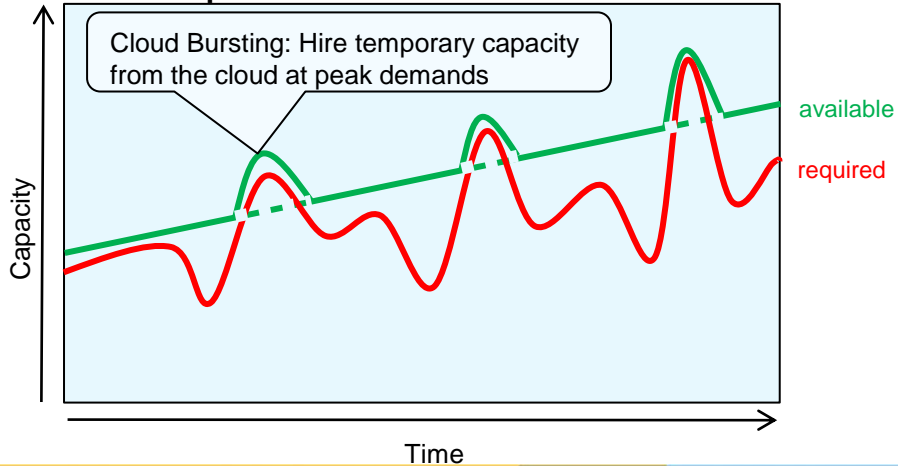
## Required versus available capacity



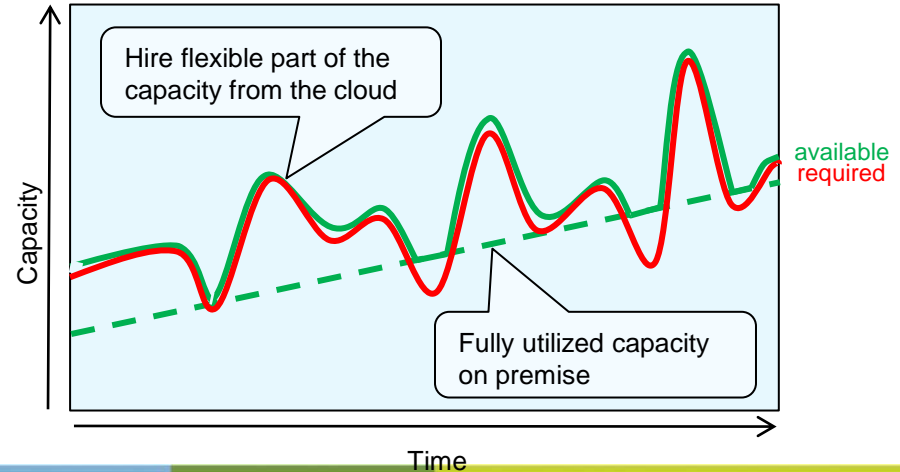
## Increasing capacity by adding servers



## Offload peak demands to the cloud



## Offload the variable demand to the cloud



# Deployment Options for NxDI

<i>Business Process as a Service (BPaaS)</i>				
<i>Software as a Service (SaaS)</i>				<b>Option 4:</b> EDA Design Services
<i>Platform as a Service (PaaS)</i>		<b>Option 2:</b> Offload batch jobs to public cloud		
<i>Infrastructure as a Service (IaaS)</i>	Current NxDI Private Cloud <b>Option 1:</b> Extend NxDI with resources			<b>Option 3:</b> Run NxDI satellite in the Cloud
	Private	Hybrid	Community	Public





Most Strategies are set after the facts